Claims

I claim:

1. Numeric control and modeling of an uncertain and complex non-congruential generator system of algorithms defined by multiple seed matrices of 1.) *match-with-rotate* for all 16 special angles on the unit circle 2.) *cusp root method*, a descending chain of 7-1 special angles from $5\pi/6$ to $5\pi/3$ (with resonance orbits and infinite loop) on the unit circle and 3.) *zero vector*, i.e. null set of *yod* group, for all 16 special angles from $0\pi k$ to $2\pi k$ defined in terms of only θ on the unit origin in polar coordinates, which teaches numerical-learning-based algorithms focusing on Artificial Neural Networks used for numerical modeling and control of the uncertain and complex system's dynamics and operating environment for nonlinear functional mapping consisting of:

data output for all combinations of seed matrices in sequences of 1.) matching digits 2.) matching special angles in degrees or radians 3.) matching special angle positions 4.) matching special angle positions in terms of sector-area and 5.) one (relative to another), two, three or four input remainder values segmented by $(x_n - x_{n-1}) = r_n$ with empty digit positions intact where the matching digits were extracted from, which are used individually or recombine in permutations to close the system loop and;

programs coded with the algorithms of the operators **Δ** representing *match-with-rotate* algorithm, *yod* representing *cusp root method* algorithm, and *zero vector* algorithm that produce the data output sequences and;

3-tuple and 4-tuple elements embedded in well-ordered data output sequences for combinations of input values and each combination of seed matrices.

2. Numeric control and modeling of an operating system or environment that consists of but is not limited to the properties, $-(-a) = -a$, $\pm 0 - 1 = -$, i^2 does not equal -1, and $-$ does not equal -1, vacuous does not equal True or False, null intersect null = disjoint, sum of vectors in the identity element law is non-commutative by $\mathbf{a} + \mathbf{0}$ does not equal $\mathbf{0} + \mathbf{a}$, the commutative property of multiplication defined as a repeated series of addition such that adding zero five times is valid but adding 5 zero times is not valid, the four values of minimum-maximum $\pm\infty = 1$, and a does not equal zero, a such that $a^2 = 0$.

3. The system of claim 1 wherein for numeric control and modeling of the 7-1 special angle seed matrices of *yod*, orbit four, a quarternion of infinite loop that generates "Power::infy:Infinite expression 1/0 encountered" as an output comment with no data for LengthOfString = 1,000,000 digits.

4. The system of claim 1 for numeric control and modeling of when the sequences of data output sets in matching digits, matching special angles, matching special angle positions,

matching special angle positions in terms of sector-area, and input remainder values segmented by $x_n - x_{n-1} = r_n$ from which the matching digits were extracted are coded in binary to 1.) simulink simulation code and routed to 2.) microcontroller (d-space), for mathematical modeling and 3.) microcontroller for physical processes to form circuits.

5. The sequences of claim 1 for numeric control and modeling of when the matching digits sequence is segmented according to the factor theorem, recombined by one-to-one correspondence in coordinate pairs with the matching special angles, and again matched in one-to-one correspondence with matching special angle positions so that the x-component of the coordinate pairs is distributed according to digit frequency over the sector-areas of the matching special angle positions, which are in one-to-one correspondence with matching special angles (y-component) and matching special angle positions.

6. The claim of 1 for numeric control and modeling of the phase space transitions as represented by Δ = 16 special angle seed matrix, $(-)^{1/2}$ = *yod* 7-1 special angle seed matrix, and *zero vector* = 16 special angle seed matrix from 0πk to 2πk defined in terms of the *yod* null set of only θ on the unit origin in polar coordinates are appended to the wave equation in combinations when $E_y = \partial Hz / \partial x$, t = time, $x_{(t)}$ defined as a point in spacetime such that $x_{(t)} = A \cos(\omega t + 90°)$, and $\partial^2 Ey / \partial t^2 = A \cos(\omega t + \varphi°)$.

7. The claim of 3 for numeric control and modeling of a controlled yet chaotic numerical control system that displays spin-scatter behavior of the infinite loop, "Power::infy:Infinite expression 1/0 encountered" within the 16 by 3 by 1 by 3 by 16 symmetry and is applied to the Linear-Quadratic-Gaussian with Loop-Transfer-Recovery (LQG/LTR) methodology for propulsion in a mechanical system.

8. The claim of 1 for numeric control and modeling of acceleration and velocity equations in undamped and damped free vibrations of mechanical and electrical oscillation displacements are modified according Δ, *yod*, and *zero vector* as operators.

9. The claim of 1 for numeric control and modeling of ratios of special angle seed matrices are for 1.) *match-with-rotate* 16/16 2.) *cusp root method* 7/16, 6/16, 5/16, 4/16, 3/16, 2/16, 1/16 and/or 0/16 for null = *zero vector*, with 3 resonance orbits in each of 5/16, 4/16, 3/16, 2/16 and an infinite loop in 4/16 and 3.) *zero vector* 16/16, as not the null set of *yod*.

10. The claim of 1 for numeric control and modeling of *cusp root method* of *yod*, *match-with-rotate* for Δ, and *zero vector* for high volumes and low costs of data storage in computer hardware and software.

11. The claim of 1 for numeric control and modeling of the 3 resonance orbits for each of 5, 4, 3, and 2 orbits of *yod* are defined as isomers.